Fisher® L2e Electric Level Controller

The rugged Fisher L2e electric on-off level controller uses a displacer type sensor to detect liquid level or the interface of two liquids of different specific gravities. This controller is ideal for controlling level in oil and gas separators, treaters, and scrubbers. The reliability of the L2e force balanced sensor design makes it well suited for applications in the oil and natural gas production, compression, and processing industries.

SCAN OR CLICK THE QR CODE FOR L2e AND easy-Drive ELECTRIC LEVEL LOOP FIELD SUPPORT

Features

- Repeatable Electric Level Control—In conjunction with the Fisher easy-Drive™ electric actuator, a fully electric level control loop is tunable for a wide variety of applications (see figure 1).
- Effective Level Loop Tuning—Intuitive Zero and Span adjustments allow flexibility in setting loop performance over a level range of 5.0 to 559 mm (0.2 to 22 inches).
- More Reliable Control—Premium quality hermetically-sealed switch with gold contacts and advanced knife-edge sensing provide highly dependable and accurate liquid level control.
- On-Line Field Support—QR code on inside cover gives instrument technicians instant access to wiring, setup, calibration, tuning, and trouble-shooting.
- Environmentally Responsible—Replacing a conventional pneumatic level loop with fully electric level control eliminates controller and dump valve venting and requires less maintenance.
- Consumes No Electrical Power—Quality of design and components help ensure no leakage current.
- Vibration Resistant Sensor Dynamics—Controller performance and reliability does not degrade in high vibration installations, such as on compressor scrubbers.
- Field-Configurable Vertical or Horizontal Displacer—Displacer may be adjusted in the field for vertical or horizontal operation without additional parts.
- Field Technician Friendly—The sensor can be easily disassembled to inspect or replace process seals. The controller, with no repairable or replaceable parts, is easily replaced in the field.
- NACE Service Ready—Standard construction uses materials that comply with the requirements of NACE MR0175-2002.
- CL1500 Pressure Rating—Sensor assembly is designed and specified for ASME B16.34 CL1500 service when using a Polyvinylchloride (PVC) displacer. For PED (97/23/EC) maximum pressure is limited to 200 bar (2900 psig).

Specifications

Available Configurations

Controller: On/Off electric control action with intuitive Zero and Span Adjustments in SPDT dry contact configuration
Sensor: Displacer-type liquid level sensor for mounting to side of vessel

Input

Type: Liquid level or liquid-to-liquid interface

Level Change Required for Full Change in State of Output: 5.0 to 559 mm (0.2 to 22 inches)

Vessel level differential gap (DG) is dependant on factors such as valve sizing, actuator speed, rate, liquid out flow, and vessel size. Contact your Emerson Process Management sales office for Fisher Electric Level Loop performance optimization

Specific Gravity Limits

Minimum SG: 0.15

Maximum SG
PVC Displacer: 1.3
SST Displacer: 1.1

Electrical Rating (Output)

■ easy-Drive actuator application: 7 mA@5 VDC
■ Other applications: 1 amp resistive, 0.5 amp inductive/28 VDC

Note: Use with easy-Drive after first being used in other high power application is not recommended.

Power Consumption

Switch consumes no power to operate, so it has no current leakage or voltage drop

Sensor to Vessel Connection

■ 2 NPT threaded or ■ NPS 2 CL150 through 1500 slip-on flange connection(1)

Controller Connection

Electrical 1/2-14 NPT external conduit connection with 18 inches of 18 AWG lead wires, located at the bottom of the case

Displacer Sizes

■ 48 X 305 mm, 541 cm^3 (1-7/8 X 12 inches, 33 in^3)
■ 76 X 152 mm, 688 cm^3 (3 X 6 inches, 42 in^3)

Maximum Displacer Rod Length(2), Horizontal or Vertical

1-7/8 x 12 Displacer with one 6-inch extension (optional use)
3 x 6 Displacer with one 3-inch extension (optional use)

Displacer Material and Maximum Sensor Working Pressure(3)

PVC Displacer: Consistent with CL1500 pressure temperature ratings per ASME B16.34 up to maximum pressure of 258.5 bar (3750 psig)
For PED (97/23/EC) maximum pressure limited to 200 bar (2900 psig)
S31603 SST Displacer: CL600 pressure temperature ratings per ASME B16.34 up to maximum pressure of 99.3 bar (1440 psig)

Note: For slip-on flange connection, maximum sensor working pressure must be consistent with the flange ratings

Operative Ambient Temperature Limits(3)

Controller: -40 to 75°C (-40 to 167°F)

Operative Process Temperature Limits(3)

Sensor:
■ PVC Displacer: -18 to 71°C (0 to 160°F)
■ S31603 SST Displacer: -40 to 204°C (-40 to 400°F)

Construction Materials

Controller:
Case and Cover: Marine grade aluminum
Switch: Stainless steel
Span Levers: Stainless steel
Springs: Stainless steel

Sensor:
Sensor Body: LCC
O-Rings: Fluorocarbon
Pivot Assembly: Stainless steel
Displacer: ■ Polyvinylchloride (PVC) or ■ S31603 SST
Sensor Spring: Stainless steel

-continued-

Specifications (continued)

Hazardous Area Classifications Available

Switch Only

cCSAus
Explosion-proof, Class I Division 1, Groups ABCD
Dust Ignition-proof Class II Division 1, Groups EFG
Dual Seal

ATEX II 2 GD
Flameproof Ex d IIC T6 (Ta=-40°C to + 75°C)
Dust Ex tb IIIC T85°C Db IP6X (Ta = -40° to +75°C)
1 A Max

IECEx
Flameproof Ex d IIC T6 (Ta=-40°C to + 75°C)
Dust Ex tb IIIC T85°C Db IP6X (Ta = -40° to +75°C)
1 A Max

Canadian Registration (CRN)
The L2e utilizes the same sensor unit pressure component as the L2 pneumatic controller version. Refer to L2 CRN which is deemed applicable to the L2e.

Dimensions
Refer to figure 2

NOTE: Specialized instrument terms are defined in ANSI/ISA Standard 51.1 - Process Instrument Terminology.
1. Converting from a threaded NPT connection to a flange connection is to be done by the end-user. Refer to Converting a Threaded NPT Connection to a Flange Connection instruction Manual Supplement (D103277X012), available at www.Fisher.com or from your Emerson Process Management sales office.
2. Maximum span setting with 1-7/8 x 12 inch horizontal displacer plus 6 inch extension is not recommended due to potentially insufficient zero adjustment.
3. The pressure and temperature limits in this document and any applicable code limitations should not be exceeded.

Figure 1. Electric Level Loop Solutions

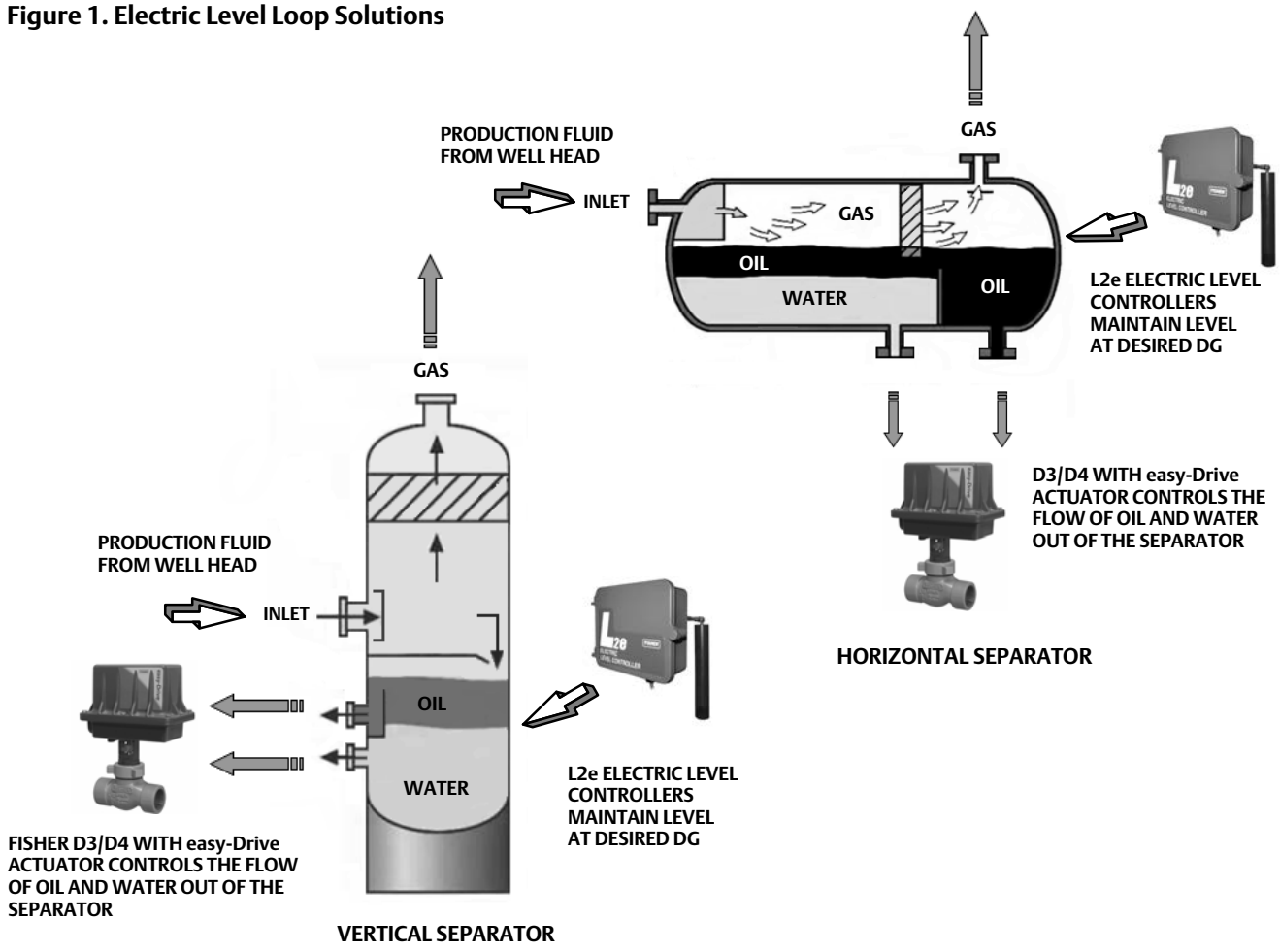
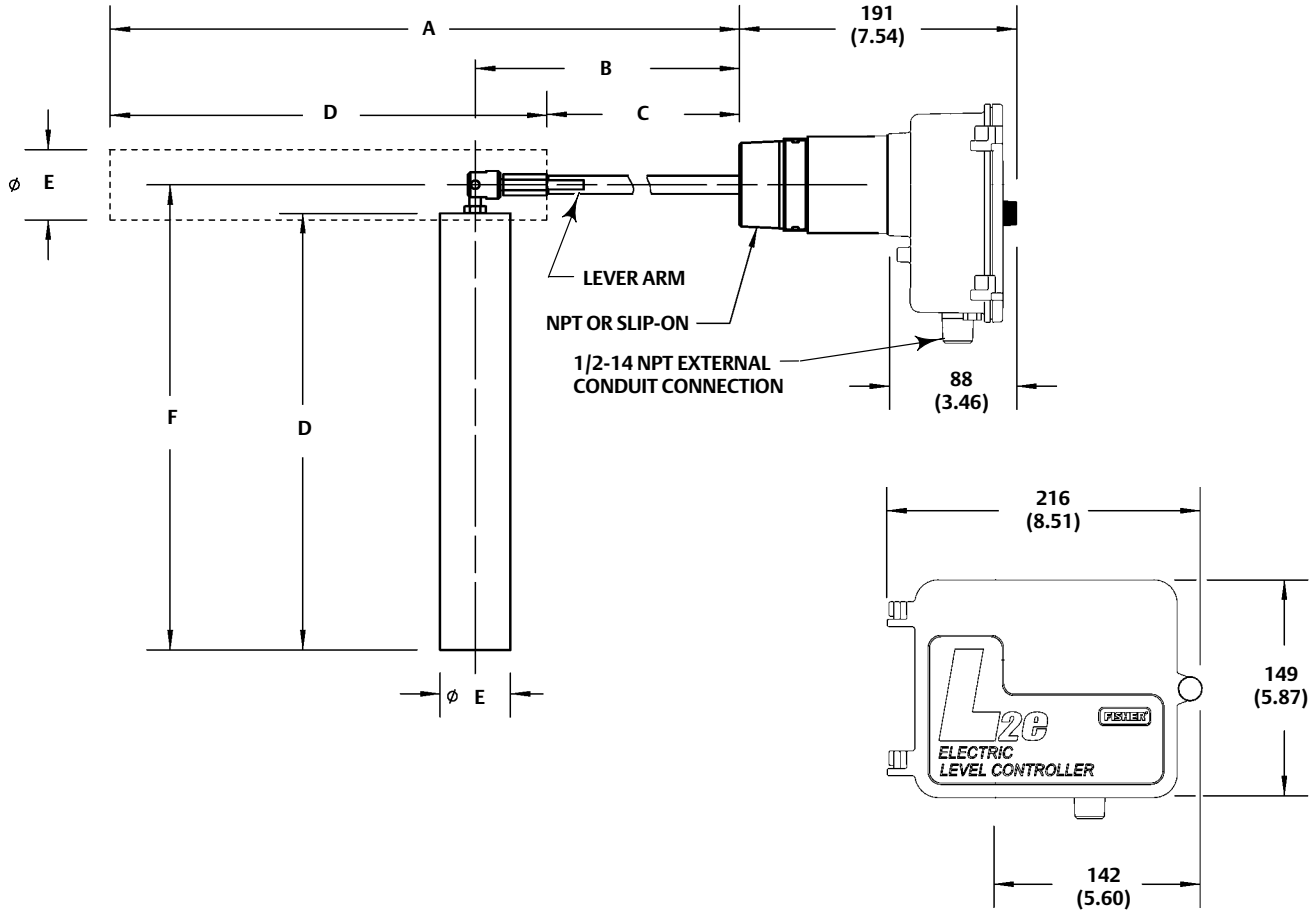

GAS
PRODUCTION FLUID FROM WELL HEAD
INLET
GAS
OIL
WATER
OIL
L2e ELECTRIC LEVEL CONTROLLERS MAINTAIN LEVEL AT DESIRED DG
D3/D4 WITH easy-Drive ACTUATOR CONTROLS THE FLOW OF OIL AND WATER OUT OF THE SEPARATOR
HORIZONTAL SEPARATOR
GAS
PRODUCTION FLUID FROM WELL HEAD
INLET
OIL
WATER
L2e ELECTRIC LEVEL CONTROLLERS MAINTAIN LEVEL AT DESIRED DG
FISHER D3/D4 WITH easy-Drive ACTUATOR CONTROLS THE FLOW OF OIL AND WATER OUT OF THE SEPARATOR
VERTICAL SEPARATOR

Figure 2. Dimensions



Sensor Configuration with Optional Extensions	A	B	C	D	E	F
	mm (Inch)					
1-7/8 x 12 PVC Displacer with one 6-inch Extension	589 (23.19)	335 (13.19)	287 (11.31)	302 (11.88)	48 (1.88)	318 (12.50)
3 x 6 PVC Displacer with one 3-inch Extension	363.4 (14.31)	258.7 (10.19)	211 (8.31)	152.4 (6.00)	76.2 (3.00)	168.1 (6.62)

mm (INCH)

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Emerson Process Management
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Chatham, Kent ME4 4QZ UK
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com

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